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# **A Mixed Methods Study: Developing an Automated Computer Vision System for Weed Seed Detection in South African Grain Seed Lots**

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**P, i, e, t, e, r, v, a, n, d, e, r, M, e, r, w, e, ,, L, e, r, a, t, o, M, o, k, o, e, n, a**

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# | Abstract

This study addresses a current research gap in Engineering concerning Developing a computer vision system for automated counting and classification of weed seeds in harvested grain seed lots in Stellenbosch, South Africa in South Africa. The objective is to clarify key debates, identify practical implications, and outline a focused agenda for scholarship and policy. A mixed-methods design was used, combining survey and interview data collected over the study period. The analysis indicates persistent structural constraints alongside emerging local innovations; however, evidence remains uneven across contexts and sectors. The paper argues for context-specific approaches and stronger empirical foundations in future research. Stakeholders should prioritise inclusive, locally grounded strategies and improve data transparency. Developing a computer vision system for automated counting and classification of weed seeds in harvested grain seed lots in Stellenbosch, South Africa, South Africa, Africa, Engineering, mixed methods study This structured abstract provides a standardised summary to support rapid screening, indexing, and assessment of scholarly contribution.

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